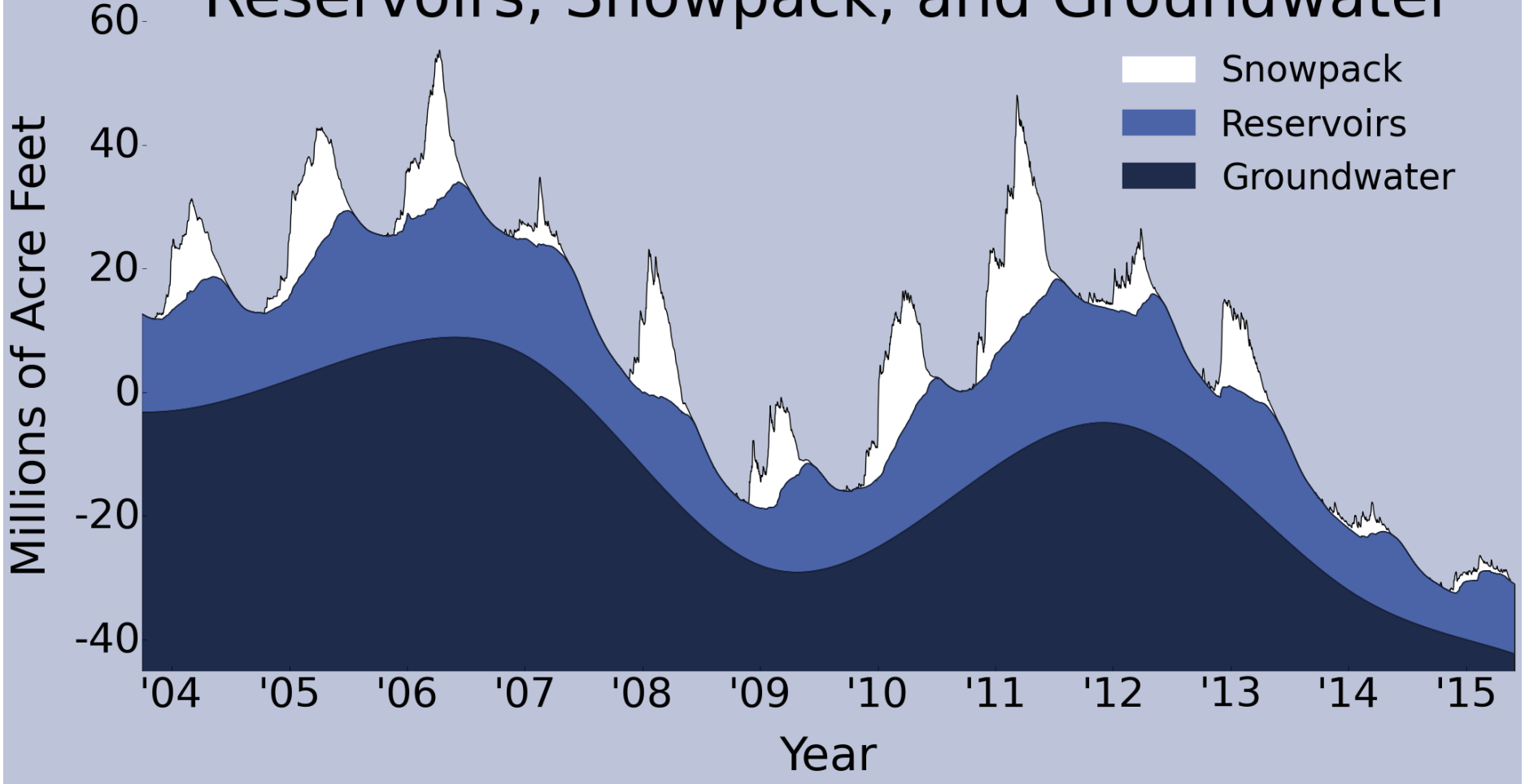
Commissioner Catherine Sandoval

Summit on Water Technology and the California Drought: Leveraging Technology to Build a Drought Resilient California

July 10, 2015 Sacramento, CA

Water Stored in California's Reservoirs, Snowpack, and Groundwater



Reservoir data is from California Department of Water Resources, and includes 39 reservoirs accounting for more than 95% of California's reservoir capacity. Snowpack data is from the National Snow and Ice Data Center's SNODAS model, and is an estimate of all snow on the ground for the entire state. For groundwater, we don't know the total amount, but we can estimate how much it changes each year. These estimates (not including seasonal fluctuation) are from J. Famiglietti, with 2003 set to zero.

Governor Brown's April 1, 2015 Executive Order

- Mandated 25% residential water use cutback
- Ordered steps to foster water conservation in agricultural, commercial-industrial, and residential sector including deployment of Advanced Technology to conserve water
- Broadband access key to saving water and energy
- CPUC study of broadband deployment gaps informs program and policy development

Bold Proposals

- **Resolution W-5034**, April 9, 2015
- *"By May 1, 2015, all water utilities subject to the Commission's jurisdiction shall publish notice of the Emergency Regulation in the local newspaper, through equivalent means of general publication* ***such as social media such as, but not limited to, Facebook, Twitter, Nextdoor*** *and on their respective website…"*
- The **Commission invites bold proposals** and expects to receive schedules that include provisions for, but not limited to,

  (1) mandatory water audits;

  (2) customer funded remotely read water meters;

  (3) restriction on water use for the top residential, commercial and industrial users;

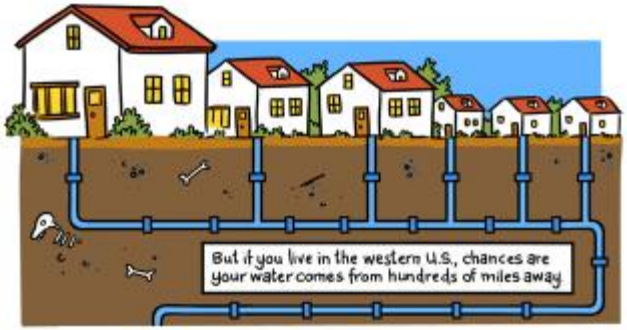
  (4) flow restrictor requirements;

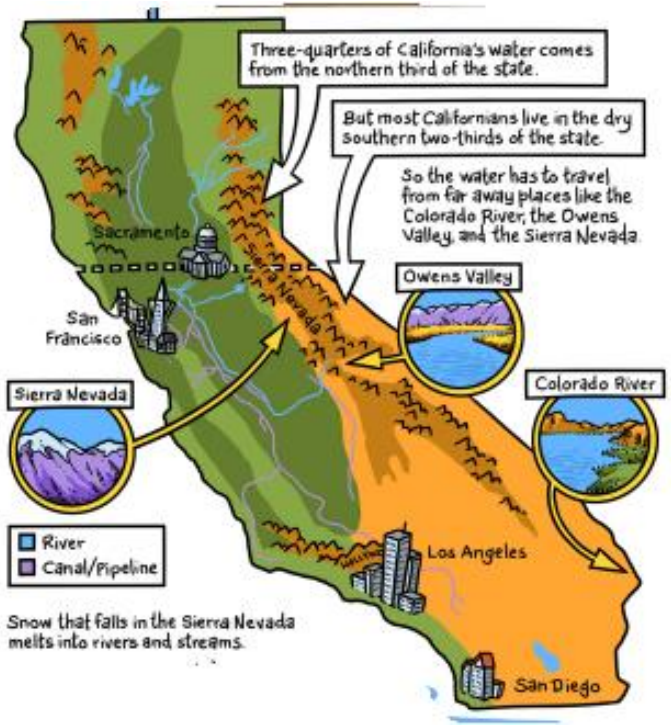
  (5) restrictive outdoor watering rules; and

  (6) limits on total water use.

Water in Energy

CalPine Geothermal Power Plant





Collect the water
Move it
Pump it
Clean it
Heat it
Use it
Clean it
Pump it
Move it

Energy in Water

http://www.kqed.org/news/science/climatewatch/waterandpower/waterneedspower.jsp (2012)

Where the Water Comes From

Commissioner Sandoval and her Chief of Staff, Ditas Katague, at a Public Participation Hearing at the Yurok Reservation Overlooking the Klamath River

Saving Water Saves Energy

Current **Hot Water Energy Efficiency Measures** Supported by Energy Efficiency Programs (EE) and Energy Savings Assistance Program (ESAP):

High Efficiency Clothes Washer / *Water Heater Blanket* / *Low Flow Shower Heads* / *Water Heater Pipe Insulation* / *Faucet Aerator* / *Water Heater Repair/Replacement* / *Thermostatic Shower Valve*

Cold Water Measures Save Energy Too!

Toilets & Toilet Water Efficiency Facts

- Toilets utilize ~ 30% of all indoor water (treated water)
- Old Toilets use 5-7 Gallons of Water/Flush
- New Low Flow High Efficiency Toilets use 1–2 Gallons/Flush
- Leaky Old Toilets can use through 200+ gallons of water/day!
- Running Toilets can run through **2000 gallons** of water/ day!!

CPUC Water-Energy Nexus
New Cost Effectiveness Calculator

- Goal: Determine the cost effectiveness of joint water energy projects for investor owned utility ratepayers

http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Water-Energy+Nexus+Programs.htm

SCE's Water Leak Detection Pilot: E3 EE Model vs. W-E Cost Effectiveness Model
(w/o allocation of budget costs)

City	Gross Measure Cost	kWh Savings	kW Savings	TRC
City 1	$15,080.00	278.3	0.11	0.01
City 2	$34,788.00	18349.7	6.40	0.28
City 3	$20,221.00	6840.4	2.51	0.18
City 4	$28,101.00	10027.3	3.36	0.19
City 5	$27,834.00	914.2	0.30	0.02
TOTAL	$126,024.00	36,409.9	12.68	

Water Loss Cost Effectiveness Using CPUC-Navigant Draft Calculator Newest Version

Scenario	Gallons of Water Saved	Avoided IOU Electric Energy Cost (2014$)	Avoided Water & Wastewater Capacity Cost (2014$)	Combined Total Resource Cost Test
City 1	530,000	$641.66	$17,436.29	1.28
City 2	21,550,000	$26,090.08	$708,966.24	22.59
City 3	11,040,000	$13,365.87	$363,201.27	19.91
City 4	8,410,000	$10,181.79	$276,677.78	10.91
City 5	530,000	$641.66	$17,436.29	0.69
TOTAL	42,060,000	$50,921.06	$1,383,717.87	12.17

Combined Total Resource Cost Test
1.28
22.59
19.91
10.91
0.69
12.17

TURF REMOVED (square feet): 3,586

EST. WATER SAVED (gallons per year): 197,230

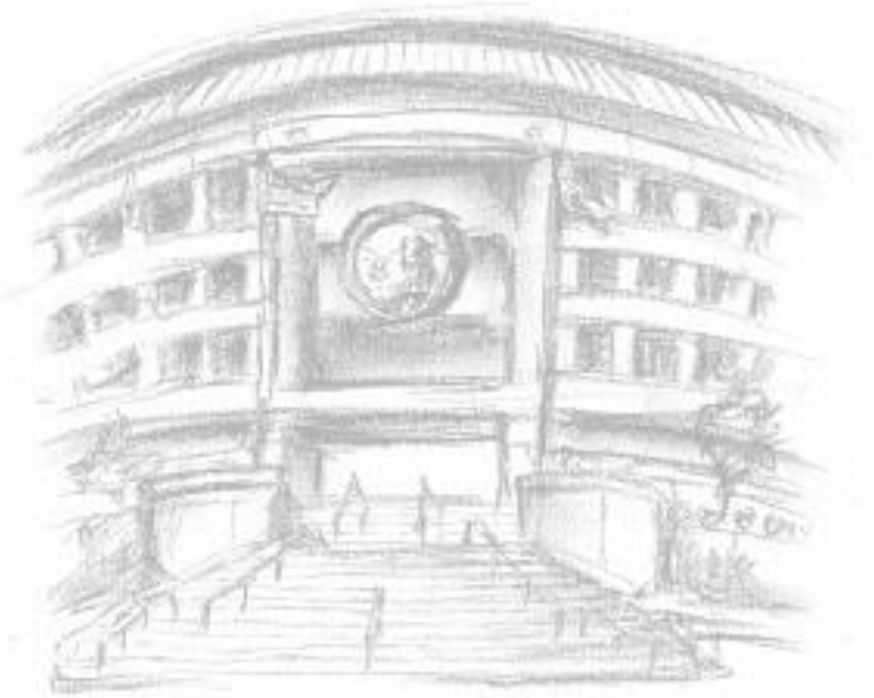
Water-Energy-Communications Nexus

- Water Management through Technology Requires Internet Access!
- Examples:
  - Joe del Bosque's Farm
  - John Deer High Tech Farm Equipment
  - Apps for Ag Hackathon constraints
  - Water Meters & Data
  - Leak Detection

How to Participate

- Become a party to CPUC Water-Energy Nexus Proceeding R.13-12-011 or subscribe to proceeding documents with our subscription service. Attend, watch or listen to a proceeding workshop or read the documents online.
- Join us at the monthly Water Energy Team of the Climate Action Team (WETCAT) public meetings in San Francisco/Sacramento or by phone.

Thanks & Questions



Catherine J.K. Sandoval, Commissioner
California Public Utilities Commission